The Monitor

The Newsletter of the ETV Advanced Monitoring Systems (AMS) Center

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Rapid Toxicity Technologies To Be Tested by AMS Center

DeltaTOX
Strategic Diagnostics, Inc.

Eclox Rapid Water Test Kit
Severn Trent Services

IQ Toxicity Test
Aqua Survey, Inc.

MicroTOX
Strategic Diagnostics, Inc.

PolyTox™
InterLab

ToxScreen
Checklight, Ltd.

ToxTrak
Hach Company

Six vendors are expected to participate in the verification test of seven technologies that can rapidly detect toxicity in water sources (see photos at left). The test will be conducted by the Advanced Monitoring Systems (AMS) Center, which is managed by Battelle in partnership with the U.S. EPA's Environmental Technology Verification (ETV) Program.

Members of the ETV stakeholder committee and vendor representatives worked with Battelle staff during March conference calls to discuss details surrounding the development of a verification test plan and to determine the schedule for the test, which is to be conducted this summer.

Rapid toxicity technologies are intended to serve as indicators of water toxicity. Until recently, these technologies have been used for water monitoring at facilities that discharge effluents, such as industrial production facilities, to monitor the potential ecological impact of the effluents.

A new use for this technology is to monitor for early signs of biological or chemical terrorism. The rapid toxicity technologies are not designed to identify a specific toxic substance or biological agent (e.g., anthrax, cyanide, heavy metals) or to measure the amount of a toxin in the sample.

Their key role is to indicate quickly if a water sample is potentially toxic if ingested. These technologies are easy to use, can be field portable, and can indicate the toxicity of a water sample usually within an hour. By comparison, standard EPA methods for measuring acute toxicity typically take 24 to 96 hours.

Technologies in this verification category use bioluminescense, fluorometric biomarkers, and changes in dissolved oxygen levels to determine toxicity.

In general, all of the technologies assess toxicity by subjecting the microorganisms to a control (i.e., "clean") sample and the sample in question.

If the microorganism's behavior in the sample is detected (photometrically or by oxygen demand) to be different than in the control sample, which is known to be uncontaminated, toxic contaminants are likely to be present in the sample.

The technologies in the verification test will be using tap water samples fortified with various concentrations of several chemical and biological contaminants.

Additional vendors interested in participating in this verification test should contact Ryan James by phone (614-424-7954) or e-mail (jamesr@battelle.org).

Photos courtesy of the vendors

The AMS Center, which is part of the U.S. Environmental Protection Agency's Environmental Technology Verification Program, verifies the performance of technologies that monitor for contaminants and natural species in air, water, and soil. ETV was established to accelerate the implementation of improved environmental technologies through third-party verification testing and reporting of the technologies' performance. The ETV process provides purchasers and permitters with an independent assessment of the technology they are buying or permitting and facilitates multi-state acceptance. For further information, contact Helen Latham at Battelle, 505 King Ave., Columbus, Ohio 43201-2693; Phone 614-424-4062; Fax 614-424-5601; E-mail lathamh@battelle.org.

Members of the AMS Center's Water Stakeholder Committee toured the University of South Florida's Center for Ocean Technology.

Air, Water Stakeholder Committees Go West, South for 2003 Winter Meetings

The AMS Center's air and water stakeholder committees met for their 10th meetings in January and March, respectively, at Riverside, CA, and St. Petersburg, FL, to share information, propose verification test priorities, learn from area experts, and visit nearby research centers. Following are summaries of each committee meeting.

- **The Air Stakeholder Committee** heard presentations on EPA Region 9's air monitoring program; future directions for the South Coast Air Quality Monitoring District; indoor air issues and monitoring needs of the California Air Resources Board; how to tie ETV more closely to the regulatory process; and an update on the national air monitoring plan. Battelle staff provided an ETV Program update that included the current status of verification tests for on-board vehicle emission monitors, multi-metals continuous emission monitors (CEMs), multi-gas portable emission analyzers, mercury CEMs (phase 2), and ammonia CEMs; discussions of future technology verification priorities; and ETV outreach and communications. After the meeting, stakeholders toured the University of California-Riverside's College of Engineering Center for Environmental Research and Technology (CE-CERT).

- **The Water Stakeholder Committee** heard speakers describe the University of South Florida's water quality monitoring goals and an integrated modeling/monitoring system for Tampa Bay; monitoring for VOCs and gases in marine and fresh water; and monitoring groundwater for arsenic sources. Researchers from the University of Maryland's Center for Environmental Science and the U.S. Geological Survey (USGS), respectively, discussed the Alliance for Coastal Technologies and monitoring nitrates, CFCs and noble gases in Florida's springs. Battelle staff members reported on the status of verification tests of multi-parameter water probes and portable arsenic analyzers, technology verification priorities, an ETV Program update, and ETV outreach activities. The stakeholders concluded the meeting with a field trip to the University of South Florida's Center for Ocean Technology.

Air, Water Verification Tests Being Planned

Ambient ammonia sensors. Vendors and partnering organizations are being sought for this verification category. Contact Ken Cowen, 614-424-5547 or cowenk@battelle.org.

Ammonia continuous emission monitors (CEMs). Several vendors are expected to participate in the verification of the performance of technologies that detect ammonia "slip" emissions. Contact Ken Cowen, 614-424-5547 or cowenk@battelle.org.

Portable water analyzers for pesticides. Vendors interested in participating in thisverification test should contact Patricia White, 781-952-5279 or whitepj@battelle.org.

Real-time ambient particulate monitors. The second round of testing is being planned. Interested vendors should contact Darrell Joseph, 614-424-3645 or josephd@battelle.org.

Test kits for pesticides in water. Vendors are being sought for this verification test. For information, contact Patricia White, 781-952-5279 or whitepj@battelle.org.

Note: Verification tests underway or completed are no longer listed in each issue of The Monitor *because of space limitations. Final verification test reports and verification statements are posted on the ETV Web Site at http://www.epa.gov/etv. The AMS Center can be accessed directly at http://www.epa.gov/etv/centers/center1.html.*

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